

PATENT COOPERATION TREATY

PCT

10559886

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PN0380 - PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/NO2004/000335	International filing date (day/month/year) 05/11/2004	(Earliest) Priority Date (day/month/year) 06/11/2003
Applicant AMERSHAM HEALTH AS		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 10 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☒ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☒ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☒ **Certain claims were found unsearchable** (See Box II).

3. ☒ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

CONJUGATES OF ANGIOTENSIN II AND AN IMAGING MOIETY

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. _____

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☒ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NO2004/000335

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

a. type of material

☒

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☒

in written format

☒

in computer readable form

c. time of filing/furnishing

☒

contained in the international application as filed

☐

filed together with the international application in computer readable form

☒

furnished subsequently to this Authority for the purpose of search

2. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NO2004/000335

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

The invention comprises pharmaceuticals of formula (I)

$Z-(L)_n-V$ (I)

wherein V denotes a peptide, L denotes an optional linker, Z denotes a group that optionally can carry an imaging moiety M, n denotes 0 or 1. The pharmaceuticals are active as therapeutic agents for the treatment of heart failure, cardiac arrhythmias and diseases where fibrosis is prominent such as COPD, liver fibrosis and atherosclerosis and are also useful as diagnostic agents for the diagnosis of heart failure and diseases where fibrosis is prominent such as COPD, liver fibrosis and atherosclerosis.

The novel pharmaceuticals comprise a targeting moiety that binds to a receptor that may or may not be up-regulated and/or over-expressed in the diseased area. The targeting moiety comprises a group which for imaging agents carry a diagnostically imageable moiety, an optional linker group and a peptide moiety.

The novel pharmaceutical compounds have high affinity for the Angiotensin Receptors, in particular for the Angiotensin II (Ang II) type 1 (AT_1) receptor.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/N02004/000335

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claim 10 is directed to a diagnostic method practised on the human/animal body, a search has been carried out, based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-11 in part

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-11 in part

Pharmaceutical according to claims 1-8, kit according to claim 11, and their use in a method of diagnosis and/or treatment of heart failure.

2. claims: 1-9 and 11 in part

Pharmaceutical according to claims 1-8, kit according to claim 11, and their use in a method of diagnosis and/or treatment of cardiac arrhythmias

3. claims: 1-11 in part

Pharmaceutical according to claims 1-8, kit according to claim 11, and their use in a method of diagnosis and/or treatment of COPD.

4. claims: 1-11 in part

Pharmaceutical according to claims 1-8, kit according to claim 11, and their use in a method of diagnosis and/or treatment of liver fibrosis.

5. claims: 1-11 in part

Pharmaceutical according to claims 1-8, kit according to claim 11, and their use in a method of diagnosis and/or treatment of atherosclerosis.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/N02004/000335

A. CLASSIFICATION OF SUBJECT MATTER

A61K51/08 A61K49/00 A61P9/00 A61P9/06 A61P11/00
A61P1/16 A61P9/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, EMBASE, Sequence Search, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98/18496 A (NYCOMED IMAGING AS; COCKBAIN, JULIAN; KLAVERNESS, JO; NAEVSTAD, ANNE;) 7 May 1998 (1998-05-07) page 2, paragraph 1 page 6, paragraph 1 claims -----	1-11
X	WO 02/064734 A (PALATIN TECHNOLOGIES, INC; SHARMA, SHUBH, D; SHI, YI-QUN) 22 August 2002 (2002-08-22)	1,3,8,11
Y	sequences 159,162-165 -----	1-11
X	WO 97/10852 A (INSTITUT FUER DIAGNOSTIKFORSCHUNG GMBH AN DER FREIE; DINKELBORG, LUDGE) 27 March 1997 (1997-03-27)	1,3,6,8, 11
Y	examples claims 5,13 -----	1-11
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

16 November 2005

Date of mailing of the international search report

10. 03. 2006

Name and mailing address of the ISA

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Authorized officer

Dullaart, A

INTERNATIONAL SEARCH REPORT

International Application No

PCT/N02004/000335

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 195 36 783 A1 (INSTITUT FUER DIAGNOSTIKFORSCHUNG GMBH AN DER FREIEN UNIVERSITAET BERL) 27 March 1997 (1997-03-27)	1,3,6,8, 11
Y	example 5 claims	1-11
X	----- KATUGAMPOLA SIDATH D ET AL: "Changes in ETA-, AT1- and AT2-receptors in the phenotypically transformed intimal smooth muscle layer of human atherosclerotic coronary arteries" JOURNAL OF CARDIOVASCULAR PHARMACOLOGY, vol. 36, no. 5, Supplement 1, 2000, pages S395-S396, XP008054675 ISSN: 0160-2446 abstract page S396	1-3,6, 8-11
X	----- SATO TAKAYA ET AL: "Quantitative receptor autoradiographic analysis for angiotensin II receptors in bovine retinal microvessels: Quantitation with radioluminography" CELLULAR AND MOLECULAR NEUROBIOLOGY, vol. 13, no. 3, 1993, pages 233-245, XP008054685 ISSN: 0272-4340 abstract	1,3,6,8
Y	page 241, paragraph DISCUSSION - page 243	1-8,11
X	----- HEALY D P ET AL: "LOCALIZATION OF CENTRAL ANGIOTENSIN II RECEPTORS WITH IODINE-125 SAR-1 ILE-8-ANGIOTENSIN II PERIVENTRICULAR SITES OF THE ANTERIOR THIRD VENTRICLE" NEUROENDOCRINOLOGY, vol. 44, no. 1, 1986, pages 15-21, XP008054687 ISSN: 0028-3835 abstract	1,3,6,8
Y	figures 3-6 page 17, right-hand column, paragraph 2 - page 18, left-hand column, paragraph 1 page 19, right-hand column, last paragraph - page 20, left-hand column, last line	1-8,11
X	----- SHIGEMATSU K ET AL: "Autoradiographic evidence of angiotensin II binding sites in the human adrenal gland" BIOMEDICAL RESEARCH 1988 JAPAN, vol. 9, no. 1, 1988, pages 27-31, XP008054681 ISSN: 0388-6107 abstract	1,3,6,8
Y	page 28, paragraph RESULTS	1-8,11
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INTERNATIONAL SEARCH REPORT

International Application No

PCT/N02004/000335

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SPETH R C ET AL: "Angiotensin II receptor localization in the canine CNS" BRAIN RESEARCH 1985 NETHERLANDS, vol. 326, no. 1, 1985, pages 137-143, XP008054668	1,3,6,8
Y	abstract page 140, paragraph RESULTS - page 141; figures	1-8,11
X	----- BAGBY SUSAN P ET AL: "ANG II AT(1) and AT(2) receptors in developing kidney of normal microswine." AMERICAN JOURNAL OF PHYSIOLOGY. RENAL PHYSIOLOGY. OCT 2002, vol. 283, no. 4, October 2002 (2002-10), pages F755-F764, XP002354300 ISSN: 0363-6127	1,3,6,8
Y	abstract figures	1-8,11
Y	----- SENERI G G ET AL: "Cardiac angiotensin II formation in the clinical course of heart failure and its relationship with left ventricular function." CIRCULATION RESEARCH, vol. 88, no. 9, 11 May 2001 (2001-05-11), pages 961-968, XP002354301 ISSN: 1524-4571 abstract	1-11
Y	----- WO 03/051859 A (AMERSHAM PLC; BOUVET, DENIS, RAYMOND, CHRISTOPHE; WADSWORTH, HARRY, JO) 26 June 2003 (2003-06-26) examples claims	1,3-8,11
Y	----- WO 03/006491 A (AMERSHAM HEALTH AS; CUTHBERTSON, ALAN; INDREVOLL, BAARD; SOLBAKKEN, MA) 23 January 2003 (2003-01-23) examples claims	1,3-8,11
Y	----- WO 03/006070 A (AMERSHAM PLC; ARCHER, COLIN, MILL; WADSWORTH, HARRY, JOHN; ENGELL, TOR) 23 January 2003 (2003-01-23) examples claims	1,3-8,11
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INTERNATIONAL SEARCH REPORT

International Application No
PCT/N02004/000335

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>HEPPELER A ET AL: "RECEPTOR TARGETING FOR TUMOR LOCALISATION AND THERAPY WITH RADIOPETIDES" CURRENT MEDICINAL CHEMISTRY, BENTHAM SCIENCE PUBLISHERS BV, BE, vol. 7, no. 9, 2000, pages 971-994, XP000982225 ISSN: 0929-8673 page 974 - page 976</p> <p>-----</p>	1,3,8,11
Y	<p>HENZE M ET AL: "PET imaging of somatostatin receptors using" JOURNAL OF NUCLEAR MEDICINE, NEW YORK, NY, US, vol. 42, no. 7, July 2001 (2001-07), pages 1053-1056, XP002245466 ISSN: 0161-5505 abstract page 1054, left-hand column</p> <p>-----</p>	1,3,8,11
Y	<p>WO 98/18498 A (MARSDEN, JOHN, CHRISTOPHER; NYCOMED IMAGING AS; KLAIVENESS, JO; RONGVED) 7 May 1998 (1998-05-07) examples claims</p> <p>-----</p>	1,3,8,11

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/N02004/000335

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9818496	A	07-05-1998	EP 0971747 A2	19-01-2000
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			EP 1379283 A2	14-01-2004
			JP 2005501220 T	13-01-2005
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			CA 2232391 A1	27-03-1997
			DE 19536781 A1	27-03-1997
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			CA 2452923 A1	23-01-2003
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			JP 2005507376 T	17-03-2005
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			BR 0210965 A	08-06-2004
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			EP 1404377 A2	07-04-2004
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			HU 0401265 A2	28-09-2004
			JP 2005500325 T	06-01-2005
			MX PA04000210 A	23-07-2004
			US 2004258619 A1	23-12-2004
			ZA 200400143 A	14-10-2004
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